

(LiMn2F4), nonstoichiometric 815609-28-0D, Lithium manganese sulfide (LiMn2S4), nonstoichiometric 815609-30-4D, Chromium lithium fluoride (CrLiF2), doped, nonstoichiometric 815609-31-5D, Lithium manganese fluoride (LiMnF2), doped, nonstoichiometric 815609-32-6D, Lithium strontium fluoride (LiSrF2), doped, nonstoichiometric 815609-34-8D, Lanthanum lithium fluoride (LaLiF2), doped, nonstoichiometric 815609-36-0D, Cerium lithium fluoride (CeLiF2), doped, nonstoichiometric
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
 (manganese anode active material production for lithium ion battery)

L18 ANSWER 2 OF 4 REGISTRY COPYRIGHT 2007 ACS on STN
 RN 815609-26-8 REGISTRY
 ED Entered STN: 18 Jan 2005
 CN Lithium manganese fluoride (LiMn2F4) (9CI) (CA INDEX NAME)
 MF F . Li . Mn
 AF F4 Li Mn2
 CI TIS
 SR CA
 LC STN Files: CA, CAPLUS
 DT.CA Caplus document type: Patent
 RLD.P Roles for non-specific derivatives from patents: USES (Uses)

Component	Ratio	Component Registry Number
=====	=====	=====
F	4	14762-94-8
Mn	2	7439-96-5
Li	1	7439-93-2

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 142:97386 CA
 TI Manganese based anode active material production for lithium ion battery
 IN Kwon, Ho Jin
 PA Samsung SDI Co., Ltd., S. Korea
 SO Repub. Korean Kongkae Taeho Kongbo, No pp. given
 CODEN: KRXXA7
 DT Patent
 LA Korean
 IC ICM H01M010-36
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 49

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	KR 2001063879	A	20010709	KR 1999-61983	19991224
PRAI	KR 1999-61983		19991224		

AB A manganese based anode active material is provided for efficient preparation of the Mn-based material having improved life time at high temperature, thermal stability and electrochem. properties by utilizing specific materials capable of reverse intercalation and deintercalation of lithium ions. The Mn based anode active material having spherical particles of 20-50- μ m diameter agglomerated with microfine particles of ≥ 1 μ m-diameter is selected from LixMO2, LixMnS2, LixMF2, LixMnO2-zFz, LixMnO2-zSz, LixMnO2-zPz, LixMn1-yMyO2, LixMn1-yMyO2-zSz, LixMn2O4, LixMn2S4 and LixMn2F4 (where x=0.9-1.1; yr=0-0.5; z=0-1.95; M is Mg, Al, Cr, Fe, Mn, Sr, La, Ce and their combinations). The active material is prepared by adding organic solvent to lithium and manganese salts to form a mixture; agitating and vaporizing the solvent to form a precursor; and thermally

processing the precursor.

ST manganese anode prodn lithium ion battery

IT Secondary batteries
(lithium, cathodes; manganese anode active material production for lithium ion battery)

IT Dissolution
Heat treatment
(manganese anode active material production for lithium ion battery)

IT Salts, uses
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manganese anode active material production for lithium ion battery)

IT Fluorides, uses
Sulfides, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(manganese anode active material production for lithium ion battery)

IT Oxides (inorganic), uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(oxide phosphides; manganese anode active material production for lithium ion battery)

IT Oxides (inorganic), uses
Sulfides, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(oxide sulfides; manganese anode active material production for lithium ion battery)

IT Fluorides, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(oxyfluorides; manganese anode active material production for lithium ion battery)

IT 7439-93-2D, Lithium, salts 7439-96-5D, Manganese, salts
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(manganese anode active material production for lithium ion battery)

IT 12003-67-7D, Aluminum lithium oxide (AlLiO_2), doped, nonstoichiometric
12017-96-8D, Chromium lithium oxide (CrLiO_2), doped, nonstoichiometric
12022-46-7D, Iron lithium oxide (FeLiO_2), doped, nonstoichiometric
12057-17-9D, Lithium manganese oxide (LiMn_2O_4), nonstoichiometric
12142-59-5D, Lanthanum lithium oxide (LaLiO_2), doped, nonstoichiometric
12162-79-7D, Lithium manganese oxide (LiMnO_2), doped, nonstoichiometric
39327-44-1D, Lithium fluoride (LiF_2), doped, nonstoichiometric
57349-02-7D, Cerium lithium oxide (CeLiO_2), doped, nonstoichiometric
147551-83-5D, Lanthanum lithium manganese oxide ($(\text{La,Mn})\text{LiO}_2$), doped, nonstoichiometric
195144-63-9D, Lithium oxide (LiO_2), doped, nonstoichiometric
367267-66-1D, Iron lithium manganese oxide ($\text{Fe}(\text{Li,Mn})\text{O}_2$), doped, nonstoichiometric
425622-71-5D, Aluminum lithium manganese oxide ($(\text{Al,Mn})\text{LiO}_2$), doped, nonstoichiometric
435268-41-0D, Chromium lithium manganese oxide ($(\text{Cr,Mn})\text{LiO}_2$), doped, nonstoichiometric
815609-07-5D, Iron lithium fluoride (FeLiF_2), doped, nonstoichiometric
815609-08-6D, Lithium strontium oxide (LiSrO_2), doped, nonstoichiometric
815609-09-7D, Lithium manganese oxide sulfide ($\text{LiMn}(\text{O,S})_2$), nonstoichiometric
815609-10-0D, Lithium manganese fluoride oxide ($\text{LiMn}(\text{F,O})_2$), nonstoichiometric
815609-11-1D, Lithium manganese oxide phosphide ($\text{LiMn}(\text{O,P})_2$), nonstoichiometric
815609-13-3D, Lithium manganese sulfide (LiMnS_2), nonstoichiometric
815609-14-4D, Lithium manganese strontium oxide ($\text{Li}(\text{Mn,Sr})\text{O}_2$), doped, nonstoichiometric
815609-15-5D, Cerium lithium manganese oxide ($(\text{Ce,Mn})\text{LiO}_2$), doped, nonstoichiometric
815609-16-6D, Lithium magnesium manganese oxide ($\text{Li}(\text{Mg,Mn})\text{O}_2$), doped, nonstoichiometric
815609-17-7D, Lithium magnesium fluoride (LiMgF_2), doped, nonstoichiometric
815609-18-8D, doped, nonstoichiometric
815609-19-9D, Aluminum lithium manganese oxide sulfide

((Al,Mn)Li(O,S)2), doped, nonstoichiometric 815609-20-2D, Chromium lithium manganese oxide sulfide ((Cr,Mn)Li(O,S)2), doped, nonstoichiometric 815609-21-3D, Iron lithium manganese oxide sulfide ((Fe,Mn)Li(O,S)2), doped, nonstoichiometric 815609-22-4D, doped, nonstoichiometric 815609-23-5D, doped, nonstoichiometric 815609-24-6D, Cerium lithium manganese oxide sulfide ((Ce,Mn)Li(O,S)2), doped, nonstoichiometric 815609-25-7D, Aluminum lithium fluoride (AlLiF2), doped, nonstoichiometric 815609-26-8D, Lithium manganese fluoride (LiMn2F4), nonstoichiometric 815609-28-0D, Lithium manganese sulfide (LiMn2S4), nonstoichiometric 815609-30-4D, Chromium lithium fluoride (CrLiF2), doped, nonstoichiometric 815609-31-5D, Lithium manganese fluoride (LiMnF2), doped, nonstoichiometric 815609-32-6D, Lithium strontium fluoride (LiSrF2), doped, nonstoichiometric 815609-34-8D, Lanthanum lithium fluoride (LaLiF2), doped, nonstoichiometric 815609-36-0D, Cerium lithium fluoride (CeLiF2), doped, nonstoichiometric
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
 (manganese anode active material production for lithium ion battery)

L18 ANSWER 3 OF 4 REGISTRY COPYRIGHT 2007 ACS on STN
 RN 289713-47-9 REGISTRY
 ED Entered STN: 20 Sep 2000
 CN Lithium manganese fluoride (9CI) (CA INDEX NAME)
 MF F . Li . Mn
 CI TIS
 SR CA
 LC STN Files: CA, CAPLUS, USPATFULL
 DT.CA CAplus document type: Patent
 RL.P Roles from patents: PREP (Preparation); USES (Uses)

Component	Ratio	Component Registry Number
=====	=====	=====
F	x	14762-94-8
Mn	x	7439-96-5
Li	x	7439-93-2

4 REFERENCES IN FILE CA (1907 TO DATE)
 4 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1

AN 141:57110 CA
 TI Metal fluorides as electrode materials for rechargeable batteries
 IN Amatucci, Glenn G.
 PA USA
 SO U.S. Pat. Appl. Publ., 26 pp., Cont.-in-part of U.S. Pat. Appl. 2004 62,994.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM H01M004-58
 ICS C01D003-02
 NCL 429231950
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	US 2004121235	A1	20040624	US 2003-721924	20031125
	US 2004062994	A1	20040401	US 2002-261863	20021001
	US 2006019163	A1	20060126	US 2005-177729	20050708
PRAI	US 2002-261863		20021001		
	US 2002-429492P		20021127		
	US 2003-721924		20031125		